Route Efficiency & Vehicle Maximization Study

Mountain Line Transit Authority
Prepared by AECOM (formerly URS) Rocky Hill, CT
Draft Scope of Services
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Background

Mountain Line Transit Authority is seeking submissions from qualified individuals/firms to develop a two-part study on route efficiency maximization and vehicle maximization analysis. The purpose of this two part study is to allow for a more efficient and effective transit service.

FTA's Map 21 has four criteria scoring system including asset age, asset condition, asset performance and level of maintenance. The FTA requires revenue service vehicles to be above a certain level of state of good repair while in service. When obtaining funding for replacement vehicles it can take several months. A successfully negotiated RFP can take several months. The time between contracting for a replacement vehicle until delivery can take between a year and two years.

A detailed study will be performed which will help the Authority maintain goals of keeping the current and future fleets in a state of good repair, monitoring, and assessing fleet conditions in a timely manner to continually remain in that condition. The planning period for this study is ten years.

The second part of this study is intended to help the Authority maintain a level of route efficiency expected by the Authority's customers and community. At times funding levels can demand changes that can influence the level of service available to the community. This route efficiency and maximization information will help the Authority in maximizing service to the community's needs.

DRAFT SCOPE OF WORK

TASK 1   PROJECT MANAGEMENT

Task 1A   URS Team Project Management

The URS Team's Project Manager (PM) will communicate regularly with Mountain Line Transit Authority (MLTA) on technical and policy matters and issues affecting completion of this study. The URS PM will also supervise individual discipline leaders to assure appropriate and/or required coordination has been accomplished with MLTA; federal, state, regional and local agencies; community/special interest groups; and the general public.

A study kick-off meeting will be held and attended by up to four study team members.

Task 1b   Monthly Progress Reports

The URS Team will develop and submit monthly reports (6) documenting the progress of each task during the reporting period. Reporting shall identify activities accomplished during the reporting period, as well as activities anticipated during the next reporting period.

Progress reports will accompany the monthly invoices and a 6-month schedule has been established to complete the tasks associated with this Scope of Work.

> *Deliverable: 6 monthly progress reports*

TASK 2   INFORMATION GATHERING

Task 2A   Data Collection

URS will work with MLTA, Morgantown Monongalia Metropolitan Planning Organization (MMMPO) and recognized state and federal databases to collect operational, market, GIS, financial, and asset data. The following operational data will be collected: ridership, revenue hours, revenue miles, operating costs, revenue, on-time performance, deviations, frequency, and span of service. Market conditions data will include census data, employment information and major attractors. GIS data will be obtained from MLTA, MMMPO, ESRI GIS, StreetMap America, and the WV GIS Data Clearinghouse. Data will include but is not limited to route alignments, roadway networks, census geometric divisions, and points of interest. Financial data will include funding and revenue sources for MLTA, fare and pass structures, most recent FTA Triennial review, and operational costs for the WVU PRT system. Asset management data will include the complete fleet inventory, other major assets, any available data on asset condition, current preventive maintenance programs, most recent fleet plans and status, any significant asset reliability or cost issues or trends, and a description of current asset data systems (inventory, vehicle history, fuel mileage data, etc.).

> *Deliverable: A list with all data types collected and sources*

Task 2B   Review of Previous Studies

URS will review the following 4 previous studies:

- MPO Long Range Transportation Plan
- MLTA's 2007 Master Plan
- MLTA's 2012 Levy Study and proposal
- MPO TDM Study w Transit Alternatives

TASK 3   COORDINATION

This task will include all meetings, meeting prep, presentations and meeting notes.

Task 3A   Kick-Off Meeting

The URS Team will prepare the following information and attend a meeting with MLTA to introduce the team, present the draft scope of services, overall study schedule, the proposed study schedule, and briefing and presentation materials. URS will work with MLTA to develop a purpose and need statement along with goals and objectives for the study. If possible this meeting will be held in conjunction with a Board Meeting otherwise Board Members will be invited. Up to five people from URS will attend. URS will also use this time to hold additional meeting(s) with MLTA to learn more about the system.

> *Deliverable: Meeting presentation. Meeting notes.*

Task 3B   Meeting with FTA

URS will hold a meeting with FTA to obtain a complete understanding of Federal funding and oversight issues and will plan the meeting with MLTA. A combination of meeting in the Region 3 offices in Philadelphia and video conference participation will be planned. The most recent information on changes in authorizations and appropriations and their effects on West Virginia and MLTA will be reviewed.

Task 3C   Meeting with State Officials

URS will join MLTA in attending a meeting with the new director of public transit for the state to discuss the possibility of receiving section 5311 funding. Currently no section 5311 funding is received even though parts of the service area are rural and significant service with rural characteristics is provided. State practice currently restricts MLTA to its small urbanized area funding. Up to two people from URS will attend. URS will have current data on the imminent service reductions, the ridership and other benefits of incremental service funding, and will be prepared to compare the benefits of more limited reductions in MLTA relative to statewide average service benefits. The URS team is also well acquainted with agencies that receive both urbanized area and rural formula funding as nearby as southwestern Pennsylvania, and with the mechanics of administering and reporting to support both sources.

Task 3D   Meeting with WVU PRT Operations

URS will meet with WVU PRT Operations to review and tour the system. This will assist the team in gaining insight into the operational cost of the system. This meeting will be held during the same trip as the kick-off meeting or other planned on site meeting (e.g. workshop) to minimize travel costs. Up to two people from URS will attend.

Task 3E   *Alternatives Workshop*

URS will hold an alternatives workshop with MLTA to present current findings and preliminary recommendations to improve efficiency. URS will provide MLTA with a menu of options to choose from. The MLTA board of directors will be invited to attend this meeting. Up to four people from URS will attend.

> **Deliverable:** *Meeting presentation and boards. Meeting notes.*

Task 3F   *Final Recommendations Meetings (3 meetings)*

URS will present the final recommendations to improve efficiency and maximize vehicles to the board, MMMPO, county commission and the city council. The presentation will be the same for all the groups but will be presented separately. It is intended that two meetings will take place over 2sequential business days, one with the board and the other with the MPO County Commission and City Council. Up to four people from URS will attend each.

> **Deliverable:** *Meeting presentation and boards. Meeting notes.*

TASK 4   PURPOSE AND NEED STATEMENT

The URS Team will develop a preliminary Purpose and Need Statement in coordination with MLTA prior to the kick-off meeting. This Purpose and Need statement will be presented at the meeting for feedback and revisions and will be used as the stepping stone in creating goals and objectives for the study. At the end of the meeting, the URS Team, in coordination with MLTA, will revisit the Purpose and Need Statement and revise it based on the findings from the initial input. The Purpose and Need Statement will be revisited as warranted during and upon completion of this study.

> **Deliverable:** *Purpose and needs statement along with goals and objectives.*

TASK 5   SYSTEM PERFORMANCE ANALYSIS

To begin this task URS will examine ridership along each route. Using the daily, monthly, and annual ridership data collected in Task 2, URS will create a snapshot of existing transit use and provide the ground work for further analysis. For each route, the team will develop classification groupings (local, express, flexible, trolley, shuttle or other classification) and compare route ridership trends for the past three years. Trends for the last three years will be represented in tabular and graphical formats including total ridership, ridership by time of day, percent of total ridership, and ridership change. URS will also map each route and stop level boarding and

alighting data using GIS software to identify clusters if the data is available. The preferred software is ESRI ArcGIS.

In order to undertake the performance analysis of the existing services for MLTA, the URS team will evaluate hours of operation, headways by time period (Peak and Non-Peak), on-time performance, daily boardings by day type, productivity (passengers per revenue hour) by day type, subsidy per passenger boarding, geographic coverage and key destinations served. The URS Team will compile the data provided by MLTA to develop a large matrix and produce a variety of tables, charts and graphs. Based on data available the matrix will include:

- Total Passenger Boarding by Line (annual, monthly, and daily)
- Mileage by Line : total, deadhead, and revenue miles
- Operating Hours: total, deadhead, and revenue hours
- One-Way Trips by Line
- Operating Revenue
- Operating Cost
- Passengers per One Way Trip
- Passenger per Revenue Hour
- Passengers per Revenue Mile
- Operating Ratio
- Subsidy per Passenger Boarding

Deliverable: A chapter of the final report summarizing the results from the analysis; excel file with matrix of route information

TASK 6   MARKET ANALYSIS

To determine if MLTA is currently deploying service in the most effective way to accommodate the transit needs of the region URS will examine the socioeconomics of the region. URS proposes to map service areas overlaid on employment and socio economic data. Census data will then be used to map population density, income, elderly populations, and household data such as minorities, unemployment levels, disabilities, and vehicle availability. If available the team will also map employment clusters. This data will then be combined to create an overall market index/demand for the region. In addition, population and employment densities can also provide an indication to the feasibility of providing fixed route service. If employment data is available URS will use this in conjunction with population data to determine where the demand for more frequent service is needed.

Data obtained in Task 2 on origin/destination activity in conjunction with a proposed survey, stakeholder interviews and Longitudinal Employer-Household Dynamics LEHD and American

Community Survey (ACS) travel patterns will be used to identify clusters and patterns. This will help guide the development of alternative service scenarios.

> *Deliverable: MLTA will be provided with a chapter for the final report which outlines where MLTA service is meeting the needs of the region and where improvements can be made. Included in the report will be relevant charts, graphs, maps and figures.*

TASK 7   FARE POLICY REVIEW

Task 7A   *Best Practices Review*

URS will conduct a fare policy review, looking at fare rates and guidelines for increasing fares. Data about funding sources, how riders pay fares, the type of fares and if the information is available a breakdown of revenue by fare media will be reviewed. The team will investigate best practices across the industry through its national business line experiences, reputable resources such as TRB, TCRP, APTA, CTAA and others. Best practices to examine include standard practices, fare rates, and fare increase policies. The team will look at peer systems to examine their base fare rate. UP to 6 peer systems will be identified based on ridership, UZA size and revenue hours.

> *Deliverable: A technical memo outlining the results of the best practices review.*

TASK 8   WVU PRT REVIEW

URS will review the operations of the WVU PRT system to determine the operational cost and feasibility to run the system year round as well as a review of the PRT fare system to examine the integration of the fare system with MLTA. If the PRT system were to operate year round it could operate as a spine for the MLTA bus service. WVU expressed concerns about maintenance; URS will investigate the possibility of operating fewer PRT vehicles during non-semester time and how maintenance issues can be addressed.

> *Deliverable: A technical memo outlining the operational cost and feasibility of operating the PRT system year-round including fare fare system integration.*

TASK 9   RECOMMENDATIONS TO IMPROVE SERVICE EFFICIENCY

The work completed in Task 2 - 8 will provide the baseline for determining alternative service scenarios to improve efficiency. The team will build upon the findings to identify areas of concern and develop alternative service scenarios that address and aid in overcoming these concerns and meeting future needs. From this baseline of work, alternatives will be developed and may include reduction in service, new services, changes in services provided, operational changes, and alignment changes to name a few. Each alternative will then be evaluated.

Step one in evaluating alternatives is to establish service standards and benchmarks for which current and future performance can be measured against. Standards may include the following:

- Measuring performance using a combination of performance measures (i.e., coverage, productivity,);
- Developing different standards for different types of routes (i.e., regional vs. rural vs. urban vs. campus);
- Understanding how availability of service can vary by region;
- Setting minimum frequency and span of service standards for different services;
- Testing the applicability of standards for reasonableness;
- Developing standards for new services;
- Determining vehicle standards based on peak loads or service type; and

Step two in developing alternatives is to develop a methodology for selecting alternatives based on the service standards and benchmarks. Criteria will be reasonably straightforward to measure readily updatable performance using existing data resources. The results of that assessment will ensure that the recommended standards and process are consistent with agency goals. MLTA will be provided with a menu of alternatives that are tailored to meet the needs of the region. These alternatives will be discussed at the workshop and those agreed upon will be further advanced into recommendations.

Final recommendations will be complete with maps depicting current service alignments as well as any recommended changes in routing, prescribed headways, running times, cycle times, interlining combinations, and suggested blocking will also be provided. Costs (miles, hours, and peak buses) and miles will be calculated at the route level. Instances where individual route initiatives are predicated by another will be clearly identified. This information will be summarized in a table which outlines by route what (if any) the alignment and/or service change.

In addition to recommendations URS will develop standards for developing new services. These standards may include criteria such as density thresholds, land uses, and employment. Each criterion will be associated with recommended levels of service. To monitor new service URS will develop service standards to which a routes performance can be monitored. These service standards will provide MLTA with a way to determine if a new service is performing well.

Deliverable: _Chapter of the report outlining the final recommendations and criteria for new services._

TASK 10 Asset Management
Include a review/recommendation of Inventory and Maintenance Software (Thing TEC).
URS will prepare a fleet plan and conceptual Asset Management Plan. Because FTA has issued only proposed rulemaking leaving a wide range of options open regarding the requirements for the MAP21 Asset Management Plan, a conceptual Asset Management Plan conforming to the concepts revealed by FTA guidance to date will be drafted.

Task 10A Fleet Plan
The current fleet plan will be reviewed for consistency with the fleet inventory and current trends in fleet utilization and performance. The service plan (Task 9) will be carefully reviewed for

realistic projections of peak vehicle requirements for the implementation period (quarterly) and 10-year plan period.

Capacity and size of vehicles will be carefully reviewed, including attention to route-specific requirements such as turning radiuses, approach/departure/breakover angles, long distance issues in Pittsburgh service, winter service, and wheelchair usage particularly in route deviation service. A plan will be developed for any necessary adjustments in the composition of the fleet to meet the future requirements.

Based on the principles of life-cycle costing and recognizing funding and regulatory constraints, a fleet plan will be prepared based on the projected mileage accumulation and peak vehicle requirements. Taking into account advantageous procurement practices, capabilities of the state procurement program, and MLTA experience in vehicle delivery, optimal vehicle retirements and delivery points will be identified. Contingencies around delivery uncertainty will be addressed. The resulting fleet plan will show fleet composition, retirements, and deliveries for the ten-year plan period.

Task 10B Asset Management Plan

A central requirement of MAP21 is for every recipient to maintain an Asset Management Plan (AMP). However, the specific requirements of the AMP are far from clear at the writing of this scope. FTA has issued two advanced notices of proposed rule-making (ANPRMs), and has also published Asset Management Guidelines as well as developed and promulgated an Introduction to Transit Asset Management course, which was developed and delivered through members of the URS team. Accordingly, the URS team will develop the asset management plan to place the fleet plan and overall MLTA planning in the most favorable light in reflecting current FTA direction. The initial outline for the conceptual AMP will include:

1. Service description and service quality standards
2. Asset inventory and condition
3. Maintenance programs
4. Asset renewal and replacement, including fleet plan
5. Funding program
6. Performance indicators
7. Asset management program improvement plan (including information technology and review of inventory and maintenance software functions such as Thing TEC or an equal qualifier).

The elements of the plan, other than the core fleet plan, will be drafted at a high, conceptual level so that the plan will be suitable for adaptation and will facilitate updating as the FTA requirements become clear and the circumstances evolve.

The draft conceptual AMP will be submitted for MLTA review and comment together with the remainder of the plans as part of Task 11.

> **_Deliverable:_** _Draft conceptual Asset Management Plan_

TASK 11   Financial Information

Under the anticipated budget URS will estimate the cost to run at current service levels. Recommendations will be made to show how funding structures must change to such as 5311, Excess Property Tax, and additional local funds. These will be tied into the reduction of 5307 operating funds for the increase in capital procurements. Using the best practices research from Task 7 URS will recommend changes to the fare structure/policy in order to keep current levels of service and avoid decreases. This will be compared to the recommendations to improve service efficiency to demonstrate the needs for increased funding in order to avoid service reductions.

> ***Deliverable:*** *Memo outlining the recommendations for increased funding and the consequences of level funding.*

TASK 12   Develop Final Plans
URS will develop the final plan and set of recommendations

> ***Deliverable:*** *Final Plans*